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Editorial

Infection Prevention and Control in low-resource settings: the need for the local, the contextual and the pragmatic

In this Article Collection for IPIP, we want to celebrate the creativity and pragmatism of our colleagues working in low-resource settings prior to SARS-CoV-2, while highlighting ongoing challenges. A recurring theme of the five papers within the Article Collection (published in IPIP throughout 2020), is the need to respect the 'local' [1,3–6]. Without understanding the context and circumstances of individual healthcare facilities and infection prevention and control (IPC) practitioners, top-down initiatives will only ever be partly successful. The five papers discussed here describe the challenges common to low-resource settings: namely high rates of antimicrobial resistance and healthcare acquired infections (such as surgical site infections), poor antimicrobial stewardship and infection prevention and control practices in general. They also provide innovative pragmatic solutions to problems such as waste management and effective benchmarking.

Surgical site infections are particularly problematic in low-resource settings. While antimicrobial prophylaxis is a key intervention, demands for effective stewardship necessitate looking beyond antibiotics. In Cambodia, Fast *et al*. introduced and assessed the impact of a training and mentorship programme provided by The Sterile Processing Education Charitable Trust (SPECT), aiming to improve sterile processing practices for surgical instruments [1]. Both qualitative and quantitative assessments demonstrated improvements however context-specific barriers were identified. In particular rural healthcare facilities suffered from a lack of local leadership and administrative buy-in, necessary for sustaining effective practices and accessing resources.

It is estimated that up to 30% of hospital admissions in African settings are associated with poor infection prevention and control (IPC) practices [2], although data from low-resource settings are scanty. Kinyenje *et al*. established that strong central leadership was exemplified by the remarkable efforts of the Tanzanian government with the introduction of a Star Rating Assessment [3]. Health facilities are rated across a range of performance indicators (including IPC), and facilities are supported in developing quality improvement initiatives specific to challenges identified. They found an overall improvement in adherence to IPC standards from 31% to 57%- an impressive achievement, though admirably, they aim higher. In order to achieve their goal of 80% compliance, authors highlight the need for implementation science and understanding of specific local context: for example, in some facilities, having the quality improvement projects disseminated in English rather than Kiswahili was a barrier to implementation.

Bunduki *et al*.'s work from the Democratic Republic of Congo echoes this need for local solutions, while quantifying the scale of the challenges confronting antimicrobial stewards and IPC practitioners [4]. They found very poor adherence to international standards of surgical antimicrobial prophylaxis across surgical and obstetric and gynaecological procedures, especially during emergency procedures, with only 18% of antibiotic use during 265 procedures assessed as 'rational'. The key issue highlighted here is the lack of local guidelines, with a reliance on international guidelines leading to a high variability of prescriber practices dependent on their individual experience and drug availability.

Our work on implementing an antimicrobial stewardship programme in a large Zimbabwean neonatal unit had similar findings-we reported a very high baseline rate of antimicrobial use-including almost universal prescription of oral amoxicillin on discharge from the unit, which is not an evidence-based intervention [5]. We reduced this dramatically with ward-based training of junior doctors and have sustained this reduction with monthly feedback and benchmarking using a co-developed digital quality improvement tool: the NeoTree [6]. A major advantage of the NeoTree is inbuilt flexibility, so the application platform can be altered by clinicians to address pertinent local issues and quality improvement targets-e.g. antimicrobial stewardship. Decreasing costs of tablets and smart phones alongside increasing technology literacy among healthcare workers in low-resource settings mean digital innovations such as NeoTree have enormous potential.

We must continue to advocate for locally driven, creative solutions to the problems we face as IPC practitioners in low-resource settings-such as that exemplified by Myneedu and Aggarwal, using microwave technology to safely dispose of the vast quantities of *Mycobacterium tuberculosis* positive sputum produced in one of India's largest specialist tuberculosis hospitals [7]. Dealing with 30–35 litres of infectious sputum a day is not feasible with an autoclave, and the current combination of 5% phenol and boiling required excessive human manipulation and had poor compliance. Their elegant and effective solution of using microwave technology (in particular using a microwave robust to power fluctuations such as frequently affect our hospitals in Zimbabwe) is something with great potential for emulation in similar settings.

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In summary, we salute the efforts of our colleagues in other low-resource settings in their pragmatism and perseverance to improve IPC despite considerable extrinsic challenges and risks (including to their own health with SARS-CoV2). To achieve our goals, we must focus on the local: empowering and listening to our IPC colleagues in smaller, district and rural facilities to ensure our plans and strategies are workable contextually. Organisations such as the Infection Control Africa Network (ICAN) can amplify our voices and ensure that we can advocate effectively for the resources we need to keep our patients and our fellow healthcare workers safe in these troubled times.

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Conflict of interest statement

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